IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of | Atty Dkt. 2380-289
C# M#
Parkvall et al. | TC/A.U.: 2616
Serial No. 09/742,283 | Examiner: Sefcheck, G.
Filed: December 22, 2000 | Date: June 21, 2006

O I P E
JUN 21 2006
PATENT & TRADEMARK OFFICE

Title: SCHEDULING TRANSMISSION OF DATA OVER A TRANSMISSION CHANNEL BASED ON SIGNAL QUALITY OF A RECEIVER CHANNEL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**
Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claim(s). $500.00 (1401)/$250.00 (2401) $

☒ An appeal **BRIEF** is attached in the pending appeal of the above-identified application $500.00 (1402)/$250.00 (2402) $ 500.00
Applicant hereby requests **reinstatement of the appeal** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claims.

☒ Credit for fees paid in prior appeal without decision on merits -$ (500.00)

☐ A reply brief is attached. **(no fee)**

☐ Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s)
One Month Extension $120.00 (1251)/$60.00 (2251)
Two Month Extensions $450.00 (1252)/$225.00 (2252)
Three Month Extensions $1020.00 (1253/$510.00 (2253)
Four Month Extensions $1590.00 (1254/$795.00 (2254) $

☐ "Small entity" statement attached.

Less month extension previously paid on -$( )

TOTAL FEE ENCLOSED $ 0.00

Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140.** A duplicate copy of this sheet is attached.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Parkvall et al. Atty. Ref.: 2380-289

Serial No. 09/742,283 Group: 2662

Filed: December 22, 2000 Examiner: Sefcheck, G.

For: SCHEDULING TRANSMISSION OF DATA OVER A TRANSMISSION CHANNEL BASED ON SIGNAL QUALITY OF A RECEIVER CHANNEL

Before the Board of Patent Appeals and Interferences

BRIEF FOR APPELLANT
On Appeal From Final Rejection
From Group Art Unit 2662

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* *

June 21, 2006

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REINSTATED APPEAL—SECOND APPEAL BRIEF

Sir:

This is the second appeal taken in this application. The notice of appeal and fee were submitted on April 25, 2005 and the first Appeal Brief and related fees were filed on June 27, 2005. In response to the first Appeal Brief, prosecution was reopened. Appellants now appeal the Examiner's most recent final office action dated March 21, 2006. Since the notice of appeal, the notice of

appeal fee, and the appeal brief fee have already been paid, no additional fees are required.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee, Telefonaktiebolaget L M Ericsson (publ), a Swedish corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals related to this subject application. There are no interferences related to this subject application.

III. STATUS OF CLAIMS

Claims 1, 3, 5, 8-16, 21-28, 30, 32, 34-43, and 46-50 are pending. Claims 1, 26, 27, 30, 32, and 38 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent Application 20030185286 to Yuen in view of U.S. Patent Application 20020036992 to Balachandran. Claims 13 and 37 stand rejected under 35 U.S.C. §103 as being unpatentable over Yuen in view of Balachandran and further in view of U.S. Patent 6,522,888 to Garceran et al. Claims 3, 5, 8-12, 14-16, 18, 21, 22, 28, 34-36, 39-41, 43, 46, and 47 stand rejected under 35 U.S.C. §103 as being unpatentable over Yuen in view of Balachandran and further in view of U.S. Patent 5,991,286 to Labonte et al.

Claims 23-25 and 48-50 stand rejected under 35 U.S.C. §103 as being unpatentable over Yuen in view of Balachandran and Labonte and further in view of Garceran.

IV. STATUS OF AMENDMENTS

No amendment has been filed after the final action dated March 21, 2006.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The claimed subject matter relates to scheduling transmission of data over a transmission channel based on a signal quality of a receiver channel. In digital data communications systems, it is common for data packets transmitted over a communications channel to be corrupted by errors, e.g., when communicating in hostile environments. Wireless radio communications are often conducted in an especially hostile environment. The radio channel is subjected to a barrage of corrupting factors including noise, rapidly changing communications channel characteristics, multi-path fading, and time dispersion which may cause intersymbol interference, and interference from adjacent channel communications.

So it is desirable to have a reliable data delivery service that guarantees delivery of data units sent from one radio to another without data duplication or data loss. Most reliable data delivery protocols use a retransmission technique

called Automatic Repeat reQuest (ARQ) where the receiver of the data responds to the sender of the data with an acknowledgement (ACK) and/or a negative acknowledgement (NAK). Coded data packets are transmitted from a sender to a receiver over a communications channel. Using error detection bits included in the coded data packet, each received data packet is processed by the receiver to determine if the data packet was received correctly or corrupted by errors. If the packet was correctly received, the receiver transmits an acknowledgement (ACK) signal back to the sender. Some example ARQ schemes are shown in Figures 1-4.

There are situations where it is desirable to have an ARQ protocol running between a radio base station and a mobile radio user equipment (UE) rather than between a radio network controller (RNC) and the UE. For example, data transmission rates can be increased by locating the ARQ retransmission mechanism as close to the radio interface as possible, thereby reducing delays associated with internal signaling in the radio access network between an RNC and two or more base stations (BSs). If the ARQ protocol resides in the base station, the ARQ feedback signaling carrying acknowledgments and/or retransmission requests from a UE terminates much faster in the base station. The BS-RNC signaling load is also decreased.

While the downlink radio channel quality is particularly relevant for scheduling downlink data packet transmissions from BS to UE, the uplink radio

channel conditions from UE to BS are also relevant for scheduling purposes, particularly when an ARQ type protocol is used. Indeed, sending data packets on the downlink channel when the uplink radio channel conditions are poor may well mean that ARQ feedback signals from the UE to the base station will be corrupted or even lost as a result of the unfavorable uplink radio channel conditions.

Soft handover also must be considered. When the UE is located close to a border between cells, the same uplink data transmission from the UE is usually received by two or more base stations. In "soft" handover, an RNC selects the best of the uplink data transmissions is selected or combines the uplink data transmissions to produce a more robust received signal.

ARQ protocols perform well as long as the ARQ feedback signals reach the entity handling the ARQ protocol. If the ARQ protocol is located in the RNC, soft handover is not a problem because different uplink ARQ feedback signals are all received by the RNC. On the other hand, if the ARQ protocol is located in the base station, soft handover creates problems because there is no guarantee that ARQ feedback signals will reach the specific base station actually handling the downlink transmission.

The solution presented by the inventors is to selectively transmit traffic over a channel in one direction, (e.g., downlink), only when a channel in the opposite direction, (e.g., uplink), is of sufficient quality to assure a reasonable or

high likelihood that the transmitter will accurately receive and decode feedback or other messages, (e.g., ARQ messages). See Figure 7.

In a preferred example embodiment, an ARQ protocol for the downlink communication to the UE is handled in the base station. The condition of the uplink channel must be good enough for the base station to accurately receive an ARQ feedback signal from the UE. For an insufficient quality uplink channel condition, the BS scheduler may delay transmission of data packets to a UE over the downlink channel and assign the shared downlink channel to another UE until the quality or condition of that uplink channel exceeds a predetermined threshold, e.g., a bit error rate, a signal-to-interference ratio, etc.

By taking into account the quality of the uplink channel from the UE, the transmitting base station BS1 ensures that it receives ARQ feedback signals. This is particularly important if the user equipment is in soft handover. See Figure 8. Even if another base station BS2, which is not transmitting the downlink data to the UE, momentarily happens to have a better uplink channel than the base station BS1, BS1 ensures that it will receive any feedback signal by controlling the timing of the downlink transmission.

The base station may also detect a predetermined condition, which although unrelated to uplink channel quality, preempts the scheduling decision being based on uplink channel quality. For example, a detected condition may be when a

Doppler frequency of the uplink channel exceeds a threshold. Another example of such a condition is when the load of a cell corresponding to the base station is less than the threshold.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The four grounds of rejection to be reviewed on appeal are the obviousness rejections based on (1) the combination of Yuen and Balachandran, (2) the combination of Yuen and Balachandran and Garceran, (3) the combination of Yuen, Balachandran, and Labonte, (4) the combination of Yuen, Balachandran, Labonte, and Garceran.

VII. ARGUMENT

A. The Primary Yuen Reference Lacks Multiple Claim Features From The Independent Claims 1 and 26

Yuen describes a handoff procedure in which the mobile 60 monitors the signal quality of a downlink[1] transmission from a first serving base station 61 and transmissions from other candidate base stations. If the downlink transmission signal quality from one of the candidate base stations (referred to hereafter as the target base station), shown as base station 62 in Figure 22, exceeds one or more

[1] Traditionally, downlink refers to communications from the base station to the mobile terminal and the uplink to communications from the mobile terminal to a base station.

criteria, then the mobile 60 initiates a handover of the mobile's communication from the serving base station 61 to the target base station 62. While the mobile 60 synchronizes with the new target base station 62, it buffers the data to be transmitted to the new target base station 62 until the synchronization is complete.

Yuen lacks multiple features recited in claims 1 and 26. As admitted, Yuen lacks any mention of a feedback signal, a feedback channel, or determining the quality of a feedback channel. But Yuen also lacks the basic communication structure required by the claims. Claims 1 and 26 require that a data packet communication already be established between first and second nodes: "data packets are communicated from a first node over a first channel to a second node and a feedback signal is sent back to the first node from the second node over a second channel" (quoted from claim 1—similar language is found in claim 26).

The only existing communication before the handoff in Yuen is between the serving base station 61 and the mobile 60. In addition to no mention of the claimed feedback features, Yuen's serving base station 61 also does not determine the condition of the uplink channel from the mobile 60 to the base station 61 to determine whether the uplink channel condition is sufficient for the base station 61 to accurately receive a signal from the mobile 60—let alone a feedback signal (including one of an ACK, NAK, or lost signal) from the mobile 60.

The Examiner takes a different reading and contends the mobile 60 is the claimed first node, the claimed first channel is the channel from the mobile 60 to the claimed second node is the serving base station 61, and the claimed second channel is the channel from the serving base station 61 back to the mobile 60. But there is no teaching in Yuen of the mobile 60 determining the condition of the second channel from the base station 61 to the mobile 60 and delaying further transmission of data packets from the mobile 60 over the first channel to base station 61 until the quality of the second channel base station 61 to the mobile 60 exceeds a threshold.

Recognizing this deficiency, the Examiner then changes horses in midstream, starting in the middle of page 3 of the final action, and shifts the second node reading onto a third node—the target handoff base station 62. But no third node is involved in claims 1 and 26. Data packets are being and have already been transmitted from the mobile to the base station 61. This change is not consistent with the independent claims 1 and 26 in which communicating entities include just the first and second nodes.

The Examiner's attempt to force fit the claim language into Yuen's handover situation continues in an effort to show delay of further transmission from the first node (mobile 60) to the second node (changed from the target base station 60 to the serving base station 61). As Yuen explains the handoff at

paragraphs 174 and 175 (referenced by the Examiner), data packets have not yet been sent to the third node corresponding to the target base station 62. So there is no "scheduling of *further* transmission of data packets" (quoted from claim 1) to the target base station 62. Nor is there any "delaying of *further* transmission of data packets" (quoted from claim 1) to the target base station 62 since data packets have not yet been transmitted.

Once the handover decision is made, the mobile 60 queues data to be sent to the new target base station 62—a new third node different from the second node 61 that the Examiner originally identified. Yuen explains: "Processor means, responsive to the first signal quality **[corresponding to transmissions from the first base station 61]** falling below any of the predetermined threshold and the second signal quality, or both, initiates handoff to the second base station **[62]** and queues data for transmission...In response to handoff completion, transmitting means transmits the stored data to the second base station **[62]**." Para. 174.

Nor is the transmission delay from mobile 60 to the third node base station 62 linked to the "the quality of the second channel exceeding a predetermined threshold." The handoff to base station 62 has been decided because the quality of the channel from the new base station 62 to the mobile 60 is sufficient for the handoff to take place. The delay is to ensure that the mobile 60 and new base station 62 are synchronized: "When the remote unit 60 is synchronized to the

second received spread-spectrum signal, the data that was stored during the handoff period is transmitted to the second base station 62." Paragraph 0187.

So Yuen lacks (1) the claimed first and second nodes and (2) scheduling *further* transmission of data over the first channel from the first node to the second node—including delaying that further transmission—based on the condition of the second channel from the second node to the first node. And as the Examiner admits, Yuen also lacks feedback related features from the independent claims 1 and 26: the claimed feedback signal itself and the claimed feedback signaling specifically from the second node on the second channel back to the first node.

B. The Combination of Yuen and Balachandran Lacks Multiple Claim Features From The Independent Claims 1 and 26

For the admitted missing third feature, the Examiner relies on Balachandran. Balachandran describes link adaptation in EGPRS, choosing an MCS based on the channel condition. Retransmissions are more robustly encoded than the first transmission attempt in the hope of reducing overall message delay time. But the transmission channel and the channel condition both relate to the same direction channel.

The Examiner apparently just cites Balachandran to show ARQ signaling to inform the sender whether a packet was properly received or not. Simply adding ARQ in general to Yuen does not overcome the deficiencies in Yuen noted above.

Even if the combination of Yuen and Balachandran could have been made, for purposes of argument only, that combination fails to disclose the following features recited below from independent claim 1:

- "the first node determining a condition of the *second* channel" from the same second node to the same first node,
- "the *first node* determining whether the condition of the *second* channel is sufficient for the first node to *accurately continue receiving a feedback signal from the second node*" over that same second channel, and
- "based on the determined condition of the second channel, *the first node scheduling further transmission of data packets over the* ***first*** *channel including delaying further transmission of data packets over the first channel until the quality of the* ***second*** *channel exceeds a predetermined threshold.*"

Similar type claim features are recited in independent claim 26. For any one of these missing claim features, the obviousness rejection based on Yuen and Balachandran should be reversed.

C. <u>The Combination of Yuen and Balachandran Is Based On Improper Hindsight</u>

The Examiner uses improper hindsight to combine Yuen and Balachandran in a failed attempt to show the three claim features bulleted above. Both Yuen and Balachandran fail to appreciate the problem addressed by the inventors. If the channel quality of the feedback channel is not particularly good, then the likelihood that an ARQ type feedback signal may not be received or received accurately is high. Consequently, transmitting data packets on the main channel in the opposite direction may not be worthwhile, even if the quality of the main channel is relatively good.

Neither Yuen nor Balachandran recognized the advantages of taking the *opposing direction* (e.g., uplink) channel quality in account when scheduling data for the initial data transmission direction (e.g., downlink). The inventors realized that it made more sense to delay data transmission in the initial direction (e.g., downlink) until the opposing direction (e.g., uplink) channel condition improved, so that the probability of receiving an accurate feedback signal was more favorable.

A proper motivation to combine requires an appreciate of the <u>desirability</u> of making the combination. It is not measured by the <u>feasibility</u> of making the combination. See *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed.

Cir. 2000). The Examiner must show reasons that the skilled artisan, confronted with *the same problems* as the inventor and *no knowledge of the claimed invention*, would select the elements from the cited prior art references for the combination in the manner claimed. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

The Examiner fails to make such a showing in this case. Yuen is concerned with handing off a mobile communication from one base station to another "without loss of data." See Abstract. Balachandran hopes to achieve a greater mean throughput by taking into account the size of the PDU. Neither reference is even tangentially concerned with making sure that data is not transmitted over a channel in one direction if the feedback channel in the opposite direction is currently poor. The obviousness rejection of claims 1 and 26 is improper on this ground as well.

D. <u>The Combination of Yuen, Balachandran, and Labonte Fails to Teach Claim Features Recited in the Independent Claims 14 and 39</u>

The rejection of claims 14 and 39 is based on three references: Yuen, Balachandran, and Labonte. The Examiner admits that both Yuen and Balachandran fail to teach a base station corresponding to the claimed first node and a mobile station corresponding to the claimed second node. The Examiner further admits that Yuen and Balachandran fail to teach "the base station acting as

the first station and performing the functions of signal quality determination and data scheduling/delaying based upon the signal quality determination of feedback communicated from a second, remote station [the mobile]." Page 8.

Labonte describes a method for selecting between different modulation levels for transmitting packet data in a cellular system. More particularly, Labonte relates to a D-AMPS+ system which includes a low-level modulation packet control channel, a high-level modulation packet control channel, a low-level modulation packet traffic channel, and a high-level modulation packet traffic channel. Labonte provides a method for selecting and transitioning between the low-level and high-level modulation packet control/traffic channels.

The Examiner relies specifically on column 7, which describes the mobile station optionally receiving from the base station a signal quality measurement of the uplink channel. The mobile decides "whether the signal quality uplink and downlink is sufficient for packet data communications." There is no intentional delay in transmitting packets over a downlink channel. Rather, Labonte elects to transmit using low-level modulation when a channel condition is poor.

Labonte's solution to poor channel quality is to use low-level modulation—not to delay transmission. Moreover, Labonte is not concerned with scheduling when to transmit data packets to ensure that ARQ feedback signals are received reliably.

As previously admitted by the Examiner during the prosecution of this applicaiton, Labonte fails to disclose delaying transmission of data packets over the first channel until the quality of the second channel exceeds a predetermined threshold. So even with this third reference, the combination of features recited in the independent is still missing.

The Examiner contends that "the disclosure of Labonte is relied upon only to show the desirability of applying the method Yuen and Balachandran to the stations on both side of the communication." Page 13. As a initial matter, the teachings of Labonte must be considered as a whole. The Examiner cannot simply chose one portion of a reference the Examiner sees as supporting his rejection and ignore the rest of the reference that does not support that rejection.

But even if it would proper, the Examiner's addition of Labonte does not save the rejection. The Examiner contends on page 13 of the final rejection: "Yuen does disclose the scheduling of further packet transmissions in one direction in an already-established connection based on the condition of the channel in the opposite direction." This is not correct. As demonstrated above, Yuen's mobile 60 queues its very first transmission to the new base station 62 after the decision is made to handoff the connection from serving base station 61 and establish a brand new connection with the second base station 62.

Yuen's delay decision is completely different from that claimed. Yuen stores the data to transmit to the new base station 62 in a buffer to allow the mobile to synchronize with the new base station 62. In addition to paragraph 187, see Yuen's claim 1 which recites: "synchronizing, at said remote unit, to the second received-spread-spectrum signal and handing off from said first base station to said second base station." After the synchronizing, the claim continues: "transmitting, from said remote unit to said second base station, the stored data at a second data rate and a second power level." In contrast, the decision to delay transmission in the rejected claims has nothing to do with handoff or synchronization with a new base station. Rather, the claimed first node is waiting for the conditions on the feedback channel from the claimed second node to improve so that ACK/NAK type signals have a high likelihood of being received without being corrupted by a poor second channel condition.

Looking at claim 39, it is plain that none of the three references discloses or suggests "a first detector configured to determine a signal quality of an uplink channel from the wireless user equipment to the base station and to *determine whether the signal quality of the uplink channel is sufficient for the base station to accurately continue receiving an ARQ feedback signal from the wireless user equipment*." None of the three references teach: "a data packet scheduler configured to schedule transmission of data packets over a *downlink channel from*

the base station to the wireless user equipment taking into account the determined quality of the uplink channel, wherein the scheduler is configured to *delay further transmission of data packets over the downlink channel until the quality of the uplink channel exceeds a predetermined threshold*."

E. **The Combination of Yuen, Balachandran, and Labonte Is Based On Improper Hindsight**

The Examiner also uses improper hindsight to combine the teachings of three references. The improper hindsight combination of Yuen and Balachandran was explained in section C above. Adding Labonte to the mix only exacerbates the hindsight problem.

Labonte's solution to poor channel quality is to use low-level modulation—not to delay transmission. Labonte is not concerned with scheduling when to transmit data packets to ensure that ARQ feedback signals are received reliably. Neither Yuen nor Balachadran teach scheduling further packet transmissions in one direction in an already-established connection based on the condition of the channel in the opposite direction. The only way one arrives at the combination of features recited in claims 14 and 39 is after reading Appellants' own specification and claims.

F. Dependent Claim Features Are Also Not Taught

Regarding claims 13, 23, 37 and 48, none of the references teaches detecting another condition and controlling the data packet transmission over the first channel without regard to the condition of the second channel when the other condition is detected. The fact that multiple conditions can be detected in Garceran is only part of what is claimed. The Examiner fails to establish whether Garceran teaches controlling the data packet transmission over the first channel *without regard to the condition of the second channel* when some other condition is detected.

Regarding claims 24, 49 and 25, 50, the Examiner can not point out where any of the other detected conditions in Garceran is specifically when a *Doppler* frequency of the uplink channel exceeds a threshold (24, 49) or when a *load of a cell* corresponding to the base station is less than a threshold (25, 50). These explicitly claimed features are just not taught.

VIII. CONCLUSION

Multiple features of the independent claims are not disclosed or suggested by the combination of Yuen and Balachandran themselves or in combination with Labonte and/or Garceran. Nor is there proper motivation to combine their teachings as the Examiner proposes. Each missing claim feature and the lack of

motivation for each combination is an independent ground for reversal. The Board should reverse the outstanding rejections.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: John R. Lastova
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JRL/sd
Enclosures
Appendix A - Claims on Appeal

IX. CLAIMS APPENDIX

1. For use in a system where data packets are communicated from a first node over a first channel to a second node and a feedback signal is sent back to the first node from the second node over a second channel, a method comprising:

the first node determining a condition of the second channel,

the first node determining whether the condition of the second channel is sufficient for the first node to accurately continue receiving a feedback signal from the second node, and

based on the determined condition of the second channel, the first node scheduling further transmission of data packets over the first channel including delaying further transmission of data packets over the first channel until the quality of the second channel exceeds a predetermined threshold,

wherein the feedback signal is an acknowledge signal, a negative acknowledge signal, or a lost signal corresponding to a data packet transmitted over the first channel.

3. (Original) The method in claim 1, further comprising:

the first node determining a condition of the first channel, and

based on the determined condition of the first and second channels, the first node controlling transmission of data packets over the first channel.

5. The method in claim 1, wherein the sufficiency of the condition of the second channel is determined so that a probability of error in the received feedback signal is below an error threshold.

8. The method in claim 3, wherein the predetermined threshold is a signal-to-interference ratio (SIR).

9. The method in claim 3, further comprising:

transmitting the data packets after a preset delay period expires.

10. The method in claim 1, wherein the first node is a base station in a radio communications network and the second node is a wireless user equipment unit, and wherein the first channel is a downlink radio channel and the second channel is an uplink radio channel.

11. The method in claim 1, wherein the first node is a wireless user equipment unit in a radio communications network and the second node is a base station, and wherein the first channel is an uplink radio channel and the second channel is a downlink radio channel.

12. The method in claim 1, wherein the first node is a radio network controller coupled to one or more base stations in a radio communications network and the second node is a wireless user equipment unit.

13. The method in claim 1, further comprising:

detecting another condition, and

controlling the data packet transmission over the first channel without regard to the condition of the second channel when the other condition is detected.

14. For use in a mobile communications system where data packets are communicated between one or more base stations and wireless user equipment units over a radio interface, a method implemented in a base station that uses an automatic repeat request (ARQ) protocol to provide reliable data packet communications with the wireless user equipment, comprising:

receiving an ARQ feedback signal from the wireless user equipment over an uplink channel from the wireless user equipment to the base station;

determining a signal quality of the uplink channel from the wireless user equipment to the base station,

determining whether the signal quality of the uplink channel is sufficient for the base station to accurately continue receiving an ARQ feedback signal from the wireless user equipment, and

scheduling transmission of data packets over a downlink channel from the base station to the wireless user equipment taking into on the determined quality of the uplink channel including delaying further transmission of data packets over the downlink channel until the quality of the uplink channel exceeds a predetermined threshold,

wherein the feedback signal is an acknowledge (ACK) signal, a negative acknowledge (NACK) signal, or a lost signal corresponding to a data packet transmitted over the first channel.

15. The method in claim 14, wherein the signal quality is a signal-to-interference ratio (SIR).

16. The method in claim 14, further comprising:

determining a signal quality of the downlink channel, and

based on the determined signal quality of the uplink and downlink channels, scheduling transmission of data packets over the downlink channel.

18. The method in claim 14, wherein the sufficiency of the signal quality of uplink channel is determined so that a probability of error in the received ARQ feedback signal is below a threshold.

21. The method in claim 14, further comprising:

transmitting the data packets after a preset delay period expires.

22. The method in claim 14, wherein the wireless user equipment is communicating with two base stations in a soft handover communication.

23. The method in claim 14, further comprising:

detecting a predetermined condition, and

scheduling the downlink data packet transmission without regard to the uplink channel signal quality when the predetermined condition is detected.

24. The method in claim 23, wherein the detected condition is when a Doppler frequency of the uplink channel exceeds a threshold.

25. The method in claim 23, wherein the detected condition is when a load of a cell corresponding to the base station is less than a threshold.

26. A first communications unit for communicating data packets over a first channel to a second communications unit, where the second communications unit sends a feedback signal to the first communications unit over a second channel in response to the transmission of data packets from the first communications unit, the first communications unit comprising:

a detector capable of determining a condition of the second channel, and

a controller capable of controlling further transmission of data packets over the first channel based on the determined condition of the second channel and of determining whether the condition of the second channel is sufficient for the first communications unit to accurately continue receiving the feedback signal from the second communications unit,

wherein the controller includes a scheduler capable of delaying further transmission of data packets over the first channel until the quality of the second channel exceeds a predetermined threshold, and

wherein the feedback signal is an acknowledge signal, a negative acknowledge signal, or a lost signal corresponding to a data packet transmitted over the first channel.

27. The communications unit in claim 26, wherein the controller includes a scheduler capable of scheduling transmission of data packets over the first channel based on the determined condition of the second channel.

28. The communications unit in claim 26, further comprising:

a detector capable of determining a condition of the first channel,

wherein the controller is capable of scheduling transmission of data packets over the first channel based on the determined conditions of the first and second channels.

30. The communications unit in claim 26, wherein the predetermined threshold is a signal-to-interference ratio (SIR).

32. The communications unit in claim 26, wherein the sufficiency of the condition of the second channel is determined so that a probability of error in the received feedback signal is below a threshold.

34. The communications unit in claim 26, wherein the first communications unit is a base station in a radio communications network and the second communications unit is a wireless user equipment unit, and wherein the first channel is a downlink radio channel and the second channel is an uplink radio channel.

35. The communications unit in claim 26, wherein the first communications unit is a wireless user equipment unit in a radio communications network and the second communications unit is a base station, and wherein the first channel is an uplink radio channel and the second channel is a downlink radio channel.

36. The communications unit in claim 26, wherein the first communications unit is a radio network controller coupled to one or more base stations in a radio communications network and the second communications unit is a wireless user equipment unit.

37. The communications unit in claim 26, further comprising:

another detector capable of detecting another condition,

wherein the controller is capable of controlling the data packet transmission over the first channel without regard to the condition of the second channel when the other condition is detected.

38. A mobile radio communications system incorporating the communications unit of claim 26.

39. For use in a mobile communications system including one or more base stations and wireless user equipment units communicating data packets with one or more base stations over a radio interface, at least one of the base stations comprising:

a transmitter configured to transmit data packets over a downlink channel to the wireless user equipment;

a controller configured to employ an automatic repeat request (ARQ) protocol to provide reliable data packet communications with the wireless user equipment;

a first detector configured to determine a signal quality of an uplink channel from the wireless user equipment to the base station and to determine whether the signal quality of the uplink channel is sufficient for the base station to accurately continue receiving an ARQ feedback signal from the wireless user equipment, and

a data packet scheduler configured to schedule transmission of data packets over a downlink channel from the base station to the wireless user equipment taking into account the determined quality of the uplink channel,

wherein the scheduler is configured to delay further transmission of data packets over the downlink channel until the quality of the uplink channel exceeds a predetermined threshold, and

wherein the feedback signal is an acknowledge (ACK) signal, a negative acknowledge (NACK) signal, or a lost signal corresponding to a data packet transmitted over the downlink channel.

40. The mobile communications system in claim 39, wherein the signal quality is a signal-to-interference ratio (SIR).

41. The mobile communications system in claim 39, the base station further including:

a second detector configured to determine a signal quality of the downlink channel,

wherein based on the determined signal quality of the uplink and downlink channels, the scheduler is configured to schedule transmission of data packets over the downlink channel.

43. The mobile communications system in claim 39, wherein the sufficiency of the signal quality of uplink channel is determined so that a probability of error in the received ARQ feedback signal is below a threshold.

46. The mobile communications system in claim 39, wherein the base station is configured to transit the data packets after a preset delay period expires.

47. The mobile communications system in claim 39, wherein the wireless user equipment is communicating with two base stations in a soft handover communication.

48. The mobile communications system in claim 39, the base station further including:

a third detector configured to detect a predetermined condition, wherein the schedule is configured to schedule the downlink data packet transmission without regard to the uplink channel signal quality when the predetermined condition is detected.

49. The mobile communications system in claim 48, wherein the detected condition is when a doppler frequency of the uplink channel exceeds a threshold.

50. The mobile communications system in claim 48, wherein the detected condition is when a load of a cell corresponding to the base station is less than a threshold.

X. EVIDENCE APPENDIX

There is no evidence appendix.

XI. RELATED PROCEEDINGS APPENDIX

There is no related proceedings appendix.